SYSTEMS AND COMPUTERS IN JAPAN

CONTENTS FOR 1988

NUMBER 1

Page

Riichiro Mizoguchi, Masaaki Kitano, Norio Fujino, Shizuo Nishiyama, and Osamu Kakusho: A Word Recognition System with Speaker Adaptation Based on Nonsupervised Learning 1

Jun Kiniwa, Shojiro Nishio, and Toshiharu Hasegawa: Several Serializable Classes in Database Concurrency Control 13

Noboru Schibuya, Haruo Takagi, Toshio Sakamoto, and Kayoko Kumamoto: Reduction of the Crosstalk Noise with the Guard-Shielding 28

Masayuki Inagawa, Takanobu Baba, Ken Ishikawa, Katsuhiro Yamazaki, and Kenzo Okuda: Unification Parallelism for Prolog Processing 37

Akira Sugimoto, Shigeru Abe, Masahiro Kuroda, and Sachio Katou: An Object-Oriented Approach for Interactive Microprogram Simulator 47

Haruo Isono: A Real-Time Measurement System to Evaluate Image Sharpness for CRT Display 58

Daisuke Miura, Hirotomo Aso, and Yasuyoshi Inagaki: A Synthesis Method of Systolic Algorithms for Nested Loop Programs 68

Yoshinao Suzuki, Tomio Hirata, Masaharu Imai, Masafumi Yamashita, and Toshihide Ibaraki: Reconfiguration of a Fault-Tolerant Rectangular Systolic Array 79

Shigehiro Fukushima and Kazuhiko Namikawa: Generation of a Closed Curve with Fourier Representation 89

Yosaku Watanabe, Kiyoko Yokoyama, and Kazuyuki Takata: An Analysis of Human Postural Sway Using Differential Information Processing 97

NUMBER 2

Yasushi Yagi, Minoru Asada, Masahiko Yachida and Saburo Tsuji: Dynamic Scene Analysis for a Mobile Robot in a Man-Made Environment 1

Shigeo Tsujii, Toshiya Itoh, Atsushi Fujioka, Kaoru Kurosawa, and Tsutomu Matsumoto: A Public-Key Cryptosystem Based on the Difficulty of Solving a System of Nonlinear Equations 10

Yuzo Hirai and Ken-ichi Kamijyo: Psychological Validity of a Model of Human Associative Processor (HASP) 19

Hideru Doi, Katsuhiro Yamazaki, Shousaku Ookawa, Takanobu Baba and Kenzo Okuda: Fast Processing of an Object-Oriented Language by a Low-Level Parallel Computer MUNAP 30

Page

Toshiaki Ejima, Yutaka Katsuyama and Masayuki Kimura: Rough Classification of Handwritten Characters by Divide-and-Unify Method 42

Tadashi Aizawa, Masaki Nakagawa and Nobumasa Takahashi: Signal Processing Approach to Optimum Preprocessing for On-Line Recognition of Handwritten Japanese Characters 51

Xi Yue Huang, Michitaka Kameyama and Tatsuo Higuchi: Design of a Time-Optimal Digital Control System for a DC-Servomotor with Amplitude Limitation . . . 64

Koichi Sano, Tetsuo Yokoyama, Shinichi Sato and Hideaki Koizumi: A Method of Analytic Phase Correction in Magnetic Resonance Imaging and Its Application to Blood-Flow Imaging 74

Yukihiro Itoh, Hiroyoshi Ohara, Shougo Shibata, Hirofumi Tachibana, You Shimada, and Akira Takagi: A Process of Understanding Sentences and Use of Knowledge 85

Ryoko Futami and Nozomu Hoshimiya: A Neural Network Model Based on Short-Term Memories for the Hierarchical Recognition of Temporal Patterns 102

NUMBER 3

Norio Akamatsu: Simulation of Load-Current-Controlled GaAs Logic Circuits 1

Takashi Kawakami and Mikio Takagi: A New Speckle Pattern Measurement Method for In-Plane Displacement Analysis 10

Kenichi Morita, Noritaka Nishihara and Eriko Emura: An Efficient Reasoning Method for Syllogism and Its Application to Knowledge Processing 20

Takayuki Ito and Kunihiko Fukoshima: A Neural Network Model Extracting Features from Speech Signals 32

Takeshi Agui, Hyung Jin Chi and Masayuki Nakajima: Method of Extracting Car Number Plates by Image Processing 46

Hiroshi Yamasaki, Tomio Hirata, Masaharu Imai, and Toshihide Ibaraki: Computational Complexity of the File Allocation Problem in Distributed Database Systems. 53

Takashi Watanabe: A Fast Algorithm for Color Image Quantization Using Only 256 Colors 64

Takeshi Agui, Masatomo Shimizu and Masayuki Nakajima: Speed-up Algorithm of Color Image Quantization 73

Eiichi Tatsumi, Masuo Izumi, Kunio Fukunaga and Tamotsu Kasai: Binocular Stereograph Based on Structure of Edgelines 79

Ken-ichi Kanatani: Coordinate Rotation Invariance of Image Characteristics for 3D Shape and Motion Recovery 87

Norio Akamatsu, Nobuaki Sakou and Robert Craigin: Fast Direct Interpolation for Computer Graphics Applications 98

NUMBER 4

Yoshihiro Namiki and Yoshiaki Koga: A Composition Method to Realize Self-Checking Fault Locators 1

Sho-ichi Matsunaga and Masaki Kohda: Reduction of Word and Minimal Phrase Candidates for Speech Recognition Based on Phoneme Recognition 11

Page

Gyo Osawa, Toshio Kawai and Hideo Aiso: Fault-Tolerant Scheme on Partial Differential Equations with Nearest-Neighbor Mesh-Connected Machines 23

Takashi Watanabe and Hitoshi Suzuki: An Experimental Evaluation of Classifiers Using Spatial Context for Multispectral Images 33

Kaoru Kurosawa, Yoshiki Kuwabara and Takashi Shigeno: A Validation Method for Communication Protocols Using Context-Free Language Theory 48

Jun'ichi Miyao, Kazuyuki Tominaga, Tohru Kikuno and Noriyoshi Yoshida: Optimization of Multiple Queries in Relational Database Systems 56

Yongjian Zhao, Hiromi Okada and Sadao Maekawa: Analysis on Memory Contentions in a Homogeneous Multiprocessor System 66

Ryu-ichi Oka: Phonemic Recognition of Input Frames by Partial Matching Method Based on Continuous Dynamic Programming 77

Takeshi Agui, Tomohito Saito and Masayuki Nakajima: 3-D Object Data Input System Using Rearview Mirrors. 88

Masafumi Matsumura and Katsuhiko Fujii: Tongue-Shaped Measurement Using Piezoelectric Thin Film. 97

NUMBER 5

Takashi Hamada and Mitsunori Kori: A Generator for Syntax-Directed Programming Systems 1

Yuzo Hirai: Representation of Procedural Knowledge by a Model of Human Associative Processor (HASP) 14

Shigeo Morishima and Hiroshi Harashima: Automatic Rule Extraction from Statistical Data and Fuzzy Tree Search 26

Ryoichi Mori and Shuichi Tashiro: The Concept of Software Service System (SSS) 38

Shuichi Tashiro and Ryoichi Mori: Implementation of a Small-Scale Prototype for Software Service System (SSS) 50

Masiki Ikegami, Tsuyoshi Yamamoto and Yoshinao Aoki: Ultrasonic Reflection Mode CT with Projection Data Using A-Mode Image 62

Tetsuya Kawamura, Yoshikatsu Ohta, Yuuji Yoshida and Teruo Fukumura: Pattern-Directed Programming System for Lisp 71

Takeshi Agui, Koichi Sugahara and Masayuki Nakajima: Three-Dimensional Computer Animation by Trigonometric Approximation to Aperiodic Motion 82

Ryuichi Oka: The Cellular Frame Model for Representation and Aggregation of Knowledge in Image Understanding 90

NUMBER 6

Takashi Watanabe, Hikaru Nakanishi, Hidehiko Sanada and Yoshikazu Tezuka: Simulation Language Based on Logic for Queueing Network Using Time Object 1

Hirotomo Aso and Yasuyoshi Inagaki: Formal Description of Systolic Algorithms and an Analysis of the Information Flow 14

Page

Hironori Kasahara, Hidehiko Wada, Munenori Kai and Seinosuke Narita: Application of DF/IHS to Minimum Total Weighted Flow Time Multiprocessor Scheduling Problems 25

Masaru Takesue: A Distributed Load-Balancing System and Its Application to List-Processing Oriented Data-Flow Machine DFM 35

Yukiya Miura, Hideo Tamamoto and Yuichi Narita: Built-In Concurrent Testing for Semiconductor Random Access Memories by Concurrently Testing Cells on a Word-Line 50

Katsuhiko Shirai, Kazunori Mano and Shunichi Ishige: Speaker Identification Based on Frequency Distribution of Vector-Quantized Spectra 63

Riichiro Mizoguchi, Yasunori Tanaka, Naoyuki Fukuda, Katsuhiko Tsujino and Osamu Kakusho: A Continuous Speech Recognition Expert System—SPREX 73

Yuichi Sato: A Pressure-Sensitive Graphic Tablet Enabling Detection of Input-Pen-Contact Area and Its Application to Electronic Blackboard System 85

An Feng, Yuji Sugiyama, Mamoru Fujii and Koji Torii: An Attribute Grammar with Common Attributes and Its Evaluator in PROLOG 97

NUMBER 7

Tatsuo Nakajima and Mario Tokoro: The Design and Implementation of Unix-Based Network System Adopting X.25 Protocol 1

Sakuichi Ohtsuka, Tomio Kishimoto and Yuichi Sato: Evaluation of Linear Interpolated Handwritten Image and an Adaptive Sampling Method for Telewriting Signal 9

Akihiro Shimizu and Shoji Miyaguchi: FEAL—Fast Data Encipherment Algorithm . . 20

Takeo Nakada, Susumu Horiguchi, Yasushi Takaki, Yoshiyuki Kawazoe and Yoshiharu Shigei: A Clustered Multiprocessor System 35

Makoto Takeda, Shigeru Masuyama and Toshihide Ibaraki: Cautious Transaction Schedulers with k Versions 46

Hiroyuki Kudo and Tsuneo Saito: A Tomographic Image Reconstruction from Limited View Angle Projection Data 56

Taizo Iijima: A Mathematical Formula for Subjective Expression of Visual Patterns 65

Shigetatsu Hamaguchi and Yoshitake Suzuki: Hardware-Matching Algorithm for High-Speed Linguistic Processing in Continuous Speech Recognition Systems . . 72

Tetsuro Kage and Shintaro Shimogori: Effective Vectorization Techniques for Circuit Analyses on a Vector Computer 82

Yoshiroh Katoh and Toshihide Ibaraki: Game Solving Procedure SSS* is Unsurpassed 93

NUMBER 8

Satoshi Ono and Naohisa Takahashi: Optimization Algorithm for Parallel Demand-Driven Computation of Functional Programs 1

Page

Michihiko Minoh, Makoto Araki, and Toshiyuki Sakai: A Method of Compressing the Data Amount of Position Information of Logical Diagrams by the Arrangement Process in the Fair-Copy Reproducing System 13

Hiroshi Kaneko: Fractal Feature and Texture Analysis 28

Yuzo Hirai and Qing Ma: Representation of Problem-Solving Processes by a Model of Associative Processor HASP. A Case Study for the Process of Addition 38

Toshimitsu Masuzawa, Ken'ichi Hagihara, and Nobuki Tokura: Distributed Algorithms for Fault Diagnosis of Processors 54

Takeshi Agui, Hyung Jin Choi, and Masayuki Nakajima: A Method of License Plate Extraction Using a Fast Pyramid Hierarchical Hough Transformation 69

Kazutoshi Koga and Hidetoshi Miike: Determining Optical Flow from Sequential Images 77

Takashi Izumi, Nozomu Hoshimiya, Akio Fujii, and Yasunobu Handa: A Presentation Method of a Traveling Image for the Sensory Feedback for Control of the Paralyzed Upper Extremity 87

Shuji Endo, Yohsuke Kinouchi, and Tomiyuki Ushita: A Neural Network Model Composed of Multioscillators to Generate Low-Frequency Biological Rhythms 97

Norimasa Noguchi, Takeshi Agui, and Masayuki Nakajima: A Method of Generating Facial Expressions Using a Database-Driven Animation System 107

NUMBER 9

Norimasa Noguchi, Takeshi Agui, and Masayuki Nakajima: A Method of Generating Facial Expressions Using a Database-Driven Animation System 1

Takao Ohuchi, Teruhiko Ohtomo, Nobuhiro Satoh, and Narihide Yamada: Transfer Movement Control of Mobile Robot Using Two Circular Arcs 10

Eiji Fujiwara and Kohji Matsuoka: Fault-Tolerant k-out-of-n Logic Unit Networks . . 21

Haruo Isono and Minoru Yasuda: Stereoscopic Depth Perception of Isoluminant Color Random-Dot Stereograms 32

Koichi Morishita and Tetsuo Yokoyama: Image Registration Method Using Adaptive Nonlinear Filter 41

Ke Juan Peng, Kunio Onda, Tsuyoshi Yamamoto, and Yoshinao Aoki: Plex Grammars for Predicate Logic Programming and Its Application to the Structural Analysis of Electronic Circuits 51

Takeshi Shakunaga and Hiroshi Kaneko: Perspective Angle Transform—Shape from Angle 65

Wataru Kameyama, Hideyuki Oka, and Hideyoshi Tominaga: Separation and Storage Method for the Elements of Map Image and the Experimental System 77

Ryuzo Takiyama: A Geometrization of the Discriminal Process Model on the Sensory System with Several Inputs and a Single Output 92

Naokazu Yokoya, Kazuhiko Yamamoto, and Noboru Funakubo: Fractal-Based Analysis of 3D Natural Shapes and Its Application to Terrain Modeling 101

NUMBER 10

Makoto Sato and Hiroshi Sasaki: Hierarchical Estimation of Displacement Vectors in Image Sequences 1

Page

Shigeharu Teshima, Hiromi Hiraishi, and Shuzo Yajima: Algebraic Specification of Parallel Systems Based on Binary Relations between Events 8

Norio Tayama, Weidong Sun, and Isao Otawara: The Design Theory of Two-Dimensional Memory Systems for Image Processing 22

Yasuhisa Niimi, Yutaka Kobayashi, and Shigeru Uzuhara: Top-Down Use of Linguistic Constraints in a Speech Understanding System 32

Hironori Kasahara, Masahiko Iwata, Seinosuke Narita, and Hirofumi Fujii: Parallel Processing of Robot Dynamics Simulation Using Optimal Multiprocessor Scheduling Algorithms 45

Masaru Takesue: A Load Control Mechanism for Data-Flow Machines 55

Yoshinobu Ebisawa, Haruyuki Minamitani, Masahiro Yamamoto, and Moriichiro Takase: Relation between Attention and Characteristics of Saccade during Tracking Eye Movement 70

Morio Nagata and Satoru Nakashima: A Method for Generating Messages of the Interactive Software Based on the Individual User Model 80

Kazumitsu Matsuzawa, Yukari Nagano, and Shigeo Kaneda: Human Interface Using Domain Knowledge Retrieval 88

Masayuki Nakajima, Takeshi Agui, and Chiharu Hanyuda: Curved-Solid-Object Input-System Using Conformal Projection Method 96

Toyohide Watanabe: An Approach for Unified User Interface in the Integrated Information System 103

NUMBER 11

Koichiro Tanabe and Atsuyuki Suzuki: Space-Time Theory GQOT and Its Application to Concurrent Processes 1

Chihiro Kasai, Akimitsu Harada and Kouroku Namekawa (deceased): Real-Time Blood-Flow Imaging System Using Ultrasonic Doppler Techniques 13

Hiroshi Matsumoto, Wagner Chiepa Cunha, Masafumi Yamashita and Tadashi Ae: Time Complexity of Response Time Estimation of Multichannel Communication Networks 25

Takeomi Tamesada: High-Speed Addition and Subtraction Using a Minimum Redundant P-ary Representation 33

Yuichiro Anzai: A Model of Integrated Information Processing Mechanism for Human and Computer Based on Cooperative Functional Modules 40

Yoshinori Kitahara, Yoh'ichi Tohkura, Shoichi Takeda and Akira Ichikawa: Role of Prosody in Cognitive Process of Spoken Language 53

Akio Kato, Masao Togawa, Kouichi Suzuki and Keizou Oda: A Visual Interface for an Object-Oriented Query in Relational Databases 62

Hisayasu Takada, Tatsuo Suzuki and Shuichi Kato: A Method of Generating User-Desired Service Macro in an Icon-Based Environment 70

Nobuyuki Matsui and Eiichi Bamba: Evaluative Cognition and Attention Allocation in Human Interface 79

Shigeru Yamada: Test Effort-Dependent Software Reliability Growth Models and Comparisons of Goodness-of-Fit 87

Page

Kazunori Seki, Noboru Sugie and Kokichi Sugihara: A Rule-Based Model for Visual Geometrical Illusions 97

NUMBER 12

Hiroaki Tajima, Motohiro Suzuki, Youichi Hamazaki, Noriaki Sanechika, Yoshikuni Okada and Kouichirou Tamura: A High-Speed Optical Bus and Its Design 1

Yoshifumi Kitamura, Masatoshi Kimachi and Masahiko Yachida: Trinocular Vision Using Edge Continuity and Local Features 13

Yoshinobu Sato and Shinichi Tamura: Design Methods for Cascaded Gaussian Filters . . 24

Ken Sakamura: Design Approach of BTRON Human Interface 35

Hiroyuki Matsui, Hiroyuki Yokota and Yukio Tokunaga: Mental Model on Telephone Operation 45

Kaoru Takahashi, Norio Shiratori and Shoichi Noguchi: Protocol Implementation Support System and Its User Interface 54

Shinji Shimojo and Hideo Miyahara: Job-Dispatching Problem in Multiprocessor System for Image Processing 63

Yoshio Yasumoto and Gerard Medioni: Corner Detection and Curve Representation Using Cubic B-Splines 73

Michitaka Kameyama, Li Zheng and Tatsuo Higuchi: Design of Fault-Tolerant System Based on Knowledge-Engineering Approach and Its Application to a Digital Control System 81

Hideo Taguchi, Koichi Munakata, Koichi Kiriyama and Katsuhiko Fujii: Brain Control of Voluntary Muscular Activities 92